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EXAMINER

ZEE, EDWARD

ART UNIT	PAPER NUMBER
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2109

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/796,193	Applicant(s) CHANG, YEN SHENG	
	Examiner Edward Zee	Art Unit 2109	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s). (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the original filing date of March, 10th 2004. Claims 1-28 are pending and have been considered below.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: the examiner notes that figure 2 contains object "19" and figure 7 contains object "S212". Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: the examiner notes the use of acronyms (ie. IEEE1394, RS-232, PS2, etc.) throughout the specification without first including a description in plain text, as required.

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Appropriate correction is required.

Claim Objections

4. Claims 14 and 28 are objected to because of the following informalities: The examiner notes the use of acronyms (ie. BIOS, EEPROM, IEEE1394, RS-232, PS2, etc.) in these claims without first including a description in plain text, as required.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 4, 5, 14, 20, 24 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Connor et al. (5,838,306).

Claim 1: O'Connor et al. discloses a method for computer booting, which disposes a fingerprint recognition module connected with a fingerprint input module on a motherboard of a computer and executes a fingerprint input process stored in a basic input/output system (BIOS) during booting or resetting the computer, the method comprising:

a. inputting a fingerprint image signal(*taking a picture of the fingerprint image*) via the fingerprint input module(*CCD device*) [column 4, lines 19-23];

b. sending the fingerprint image signal to the fingerprint recognition module to produce a recognition code(*fingerprint signal may be encoded by circuitry*) [column 4, lines 26-29];

c. and comparing the recognition code(*processed fingerprint signature signal*) with at least a pre-stored recognition code to produce a comparison result(*compare with various "approved" fingerprint signals*) [column 4, lines 39-46], wherein the comparison result is used to determine if booting the computer is permitted(*access to the system is denied*) [column 5, lines 57-63].

Claim 2: O'Connor et al. discloses a method as in claim 1 above and further discloses that in the step of inputting the fingerprint image signal, the fingerprint image signal is stored in the BIOS, a non-volatile memory or a hard disk [abstract]. The examiner notes the fingerprint image signal being stored in the BIOS is implied if it is transmitted to the BIOS for comparison.

Claim 4: O'Connor et al. discloses a method as in claim 1 above and further discloses that the step of comparing the recognition code with the pre-stored recognition code employs the fingerprint recognition module to compare the recognition code with the pre-stored recognition code(*fingerprint data is compared to one or more valid signatures stored in memory*) [column 5, lines 31-37].

Claim 5: O'Connor et al. discloses a method as in claim 1 above and further discloses that the step of comparing the recognition code with the pre-stored recognition code to produce the comparison result used to determine if booting the computer is permitted further comprises:

a. continuing a booting process(*allow entry into system*) if the comparison result shows that the recognition code matches the pre-stored recognition code [column 5, lines 54-57];

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b. and requesting another fingerprint input(*"retry" message is displayed*) or shutting down the computer(*access to system is denied if retry allowance is exceeded*) if the comparison result shows that the recognition code doesn't match the pre-stored recognition code [column 5, lines 57-63].

Claim 14: O'Connor et al. discloses a computer motherboard, comprising:

- a. a BIOS having a booting process [column 3, lines 38-41];
- b. a fingerprint input module(*CCD device*) used to input at least a first fingerprint image [column 4, lines 19-23];
- c. and a fingerprint recognition module electrically connected(*control cable provides an electrical interface*) with the fingerprint input module and the BIOS for abstracting a feature value of the first fingerprint image and encoding the feature value to form a recognition code [column 3, lines 61-67];
- d. wherein, during computer booting, the booting process(*the check fingerprint BIOS routine*) is able to control the fingerprint recognition module to compare the recognition code with at least a pre-stored recognition code to produce a comparison result used to determine if computer booting is permitted to continue [column 5, lines 20-40].

Claim 20: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses that the fingerprint input module(*window area*) is disposed on a mouse and connected with the fingerprint recognition module of the computer motherboard via a fingerprint transmission line combined with a transmission line of the mouse(*a control cable provides an electrical interface to the computer system to which the mouse is connected*) [column 3, lines 42-67].

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Claim 24: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses a storage device electrically connected with the fingerprint recognition module to store the first fingerprint image and the pre-stored recognition code(*various "approved" fingerprint signals*) [column 4, lines 43-46]. The examiner notes that it is inherent for the first fingerprint image to be stored before performing a comparison on it.

Claim 27: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses a transmission interface(*control cable provides an electrical interface*) disposed on the computer motherboard to electrically connect the fingerprint recognition module with the fingerprint input module [column 3, lines 61-67].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 6-13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al. (5,838,306) in view of Terao (6,256,402).

Claim 3: O'Connor et al. discloses a method as in claim 1 above, but does not explicitly disclose that the step of sending the fingerprint image signal to the fingerprint recognition module to produce the recognition code further comprises:

a. abstracting at least a feature value from the fingerprint image signal [column 4, lines 23-25];

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- b. and encoding the feature value to form the recognition code [column 4, lines 26-29].

However, Terao discloses a similar method and further discloses that the step of sending the fingerprint image signal to the fingerprint recognition module to produce the recognition code further comprises abstracting at least a feature value from the fingerprint image signal(*extracts features from fingerprint read by the camera*) and encoding the feature value to form the recognition code(*feature data*) [column 3, lines 1-10]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to abstract feature values from the fingerprint signal disclosed by O'Connor et al. and encode them to form a recognition code. One would have been motivated to do so in order to efficiently store the fingerprint signatures in a compressed form instead of storing the entire image.

Claim 6: O'Connor et al. discloses a method for computer booting, which disposes a fingerprint recognition module connected with a fingerprint input module on a motherboard of a computer for performing the comparison of a user's finger print signature with a set of pre-stored authorized signatures [abstract], but does not explicitly disclose executing a fingerprint pre-storing process stored in a basic input/output system (BIOS) during booting or resetting the computer, the method comprising:

- a. providing a username;
- b. employing the fingerprint input module to provide a fingerprint image signal;
- c. sending the fingerprint image signal to the fingerprint recognition module to produce a recognition code;
- d. storing the recognition code as a pre-stored recognition code corresponding to the username;

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e. and resetting the computer.

However, Terao discloses a similar method and further discloses a fingerprint registration process comprising:

- a. providing a username(*password*) [column 2, lines 58-67];
- b. employing the fingerprint input module(*camera*) to provide a fingerprint image signal [column 2, lines 58-67];
- c. sending the fingerprint image signal to the fingerprint recognition module(*feature extractor*) to produce a recognition code(*feature data*) [column 3, lines 1-10];
- d. storing the recognition code(*feature data*) as a pre-stored recognition code corresponding to the username(*password*) [column 3, lines 1-10].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ this fingerprint registration process when pre-storing the authorized signatures as disclosed by O'Connor et al.. One would be motivated to do so in order to allow the end user of the computer to perform the steps of adding authorized users to a computer instead of requiring the manufacturer or the like to add additional user.

Nonetheless, neither explicitly disclose resetting the computer. However, it would have been obvious to one of ordinary skill in the art at the time of invention to reset the computer after executing a fingerprint pre-storing process. One would have been motivated to do so in order for the user to verify that the update was successful.

Claims 7 and 8: O'Connor et al. discloses a method as in claim 6 above, but neither explicitly disclose that the BIOS is an electrically erasable programmable read-only memory (EEPROM) or flash memory having a storage region for storing the pre-stored recognition code. The

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examiner notes that it is old and well known in the art to implement the BIOS using an EEPROM or flash memory. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ an EEPROM or flash memory for storing the pre-stored recognition code. One would have been motivated to use an electronically erasable/writable form of memory in order to make updating the pre-stored recognition codes simpler.

Claim 9: O'Connor et al. and Terao disclose a method as in claim 6 above and O'Connor et al. further discloses that in the step of storing the recognition code, the pre-stored recognition code is stored in a memory device [column 4, lines 43-44], but neither explicitly disclose that the memory is a non-volatile memory or a hard disk. However, it would have been obvious to one of ordinary skill in the art at the time of invention to employ flash memory or a hard disk or any other form of non-volatile memory as a storage device. One would have been motivated to do so in order to prevent the loss of the stored information in the event that the computer is powered down.

Claim 10: O'Connor et al. and Terao disclose a method as in claim 6 above and O'Connor et al. further discloses that in the step of sending the fingerprint image signal, the fingerprint image signal is stored in the BIOS, a non-volatile memory or a hard disk [abstract]. The examiner notes the fingerprint image signal being stored in the BIOS is implied if it is transmitted to the BIOS for comparison.

Claim 11: O'Connor et al. and Terao disclose discloses a method as in claim 6 above and Terao further discloses that the step of sending the fingerprint image signal to the fingerprint recognition module to produce the recognition code further comprises abstracting at least a feature value from the fingerprint image signal(*extracts features from fingerprint read by the*

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camera) and encoding the feature value to form the recognition code(*feature data*) [column 3, lines 1-10].

Claim 12: O'Connor et al. and Terao disclose a method as in claim 6 above and O'Connor et al. further discloses that the security feature is encoded into the BIOS [column 3, lines 38-41], but neither explicitly disclose choosing an item of a menu of the BIOS to execute the fingerprint pre-storing process. However, it would have been obvious to one of ordinary skill in the art at the time of invention to include a menu option within the BIOS for executing the fingerprint pre-storing process. One would be motivated to do so in order to allow the end user of the computer to perform the steps of adding authorized users to a computer instead of requiring the manufacturer or the like to add additional user.

Claim 13: O'Connor et al. and Terao disclose a method as in claim 6 above and Terao further discloses pressing a hot key(*registration button*) to execute the fingerprint pre-storing process [column 2, lines 58-67], but neither explicitly disclose that the hot key is located on the keyboard. However, it would have been obvious to locate the hot key on the keyboard. One would have been motivated to do so in order to situate the frequently used buttons on a readily accessible area such as a keyboard.

Claim 17: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses a memory device for storing the pre-stored recognition code [column 4, lines 43-44], but does not explicitly disclose that the BIOS further has a fingerprint pre-storing process used to input at least a second fingerprint to provide the pre-stored recognition code, and wherein the pre-stored recognition code is stored in a non-volatile memory, via the fingerprint input module

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and the fingerprint recognition module. However, Terao discloses a similar method and further discloses a fingerprint registration process comprising:

- a. employing the fingerprint input module(*camera*) to provide a fingerprint image signal [column 2, lines 58-67];
- b. sending the fingerprint image signal to the fingerprint recognition module(*feature extractor*) to produce a recognition code(*feature data*) [column 3, lines 1-10];
- c. storing the recognition code(*feature data*) as a pre-stored recognition code [column 3, lines 1-10].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ this fingerprint registration process when pre-storing the authorized signatures as disclosed by O'Connor et al.. One would be motivated to do so in order to allow the end user of the computer to perform the steps of adding authorized users to a computer instead of requiring the manufacturer or the like to add additional user.

Nonetheless, neither explicitly disclose that the memory is a non-volatile memory. However, it would have been obvious to one of ordinary skill in the art at the time of invention to employ a form of non-volatile memory as a storage device. One would have been motivated to do so in order to prevent the loss of the stored information in the event that the computer is powered down.

9. Claims 15, 16, 18, 19, 21-23, 25, 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor et al. (5,838,306).

Claims 15 and 16: O'Connor et al. discloses a computer motherboard as in claim 14 above, but does not explicitly disclose that the BIOS is an EEPROM or flash memory having a storage

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region for storing the pre-stored recognition code. The examiner notes that it is old and well known in the art to implement the BIOS using an EEPROM or flash memory. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ an EEPROM or flash memory for storing the pre-stored recognition code. One would have been motivated to use an electronically erasable/writable form of memory in order to make updating the pre-stored recognition codes simpler.

Claims 18 and 19: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses that fingerprint input module(*window area*) is disposed on a mouse and connected with the fingerprint recognition module of the computer motherboard via a fingerprint transmission line combined with a transmission line of the mouse(*a control cable provides an electrical interface to the computer system to which the mouse is connected*) [column 3, lines 42-67], but does not explicitly disclose that the fingerprint input module is disposed on a computer housing and connected with the fingerprint recognition module of the computer motherboard via a fingerprint transmission line or that the fingerprint input module is disposed on a computer keyboard and connected with the fingerprint recognition module of the computer motherboard via a fingerprint transmission line combined with a transmission line of the keyboard. However, it would have been obvious to one of ordinary skill in the art to locate the fingerprint input module on the computer housing or keyboard depending on the intended application. One would have been motivated to do so in order to comply with design constraints, such as on a portable laptop computer where external devices are not desirable. Therefore, it would be advantageous to locate the fingerprint input module on the computer housing itself or on the keyboard.

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Claim 21: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses that the fingerprint input module further comprises a fingerprint scanner(CCD device) is used to input the first fingerprint image and that the image is translated into an electrical signal representative [column 4, lines 19-25], but does not explicitly disclose that an analog/digital (A/D) converter used to convert the first fingerprint image into a digital fingerprint image signal. However, it would have been obvious to one of ordinary skill in the art at the time of invention to translate an analog image signal into a digital fingerprint signal using an A/D converter. One would have been motivated to do so in order to facilitate the fingerprint compare process by performing the process in digital form, which in turn will increase the accuracy and speed as well.

Claim 22: O'Connor et al. discloses a computer motherboard as in claim 14 above and further discloses including the processing circuitry in a mouse peripheral unit [column 4, lines 32-36], but does not explicitly disclose that the fingerprint recognition module is a fingerprint recognition integrated circuit (IC). However, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the fingerprint recognition module using an integrated circuit. One would have been motivated to do so in order to increase the performance of the fingerprint recognition process by employing a separate hardware implemented module instead of implementing the module via software.

Claim 23: O'Connor et al. discloses a computer motherboard as claimed in claim 14, wherein the fingerprint recognition module further comprises:

- a. a fingerprint encoder used to abstract the feature value of the first fingerprint image and encode the feature value to form the recognition code;

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b. and a fingerprint comparator used to compare the recognition code with the pre-stored recognition code to produce the comparison result.

Claims 25 and 26: O'Connor et al. discloses a computer motherboard as in claims 14 and 24 above, but does not explicitly disclose that the storage device is a flash memory or a hard disk. However, it would have been obvious to one of ordinary skill in the art at the time of invention to employ flash memory or a hard disk or any other form of non-volatile memory as a storage device. One would have been motivated to do so in order to prevent the loss of the stored information in the event that the computer is powered down.

Claim 28: O'Connor et al. discloses a computer motherboard as in claim 27 above and further discloses that the transmission interface uses a serial protocol [column 7, lines 16-19], but does not explicitly disclose that it is a universal serial bus (USB), an IEEE1394 interface, a RS-232 interface, a PS2 interface or a parallel port interface. However, it would have been obvious to one of ordinary skill in the art at the time of invention to employ any well-known interface as a transmission interface. One would have been motivated to use a readily available interface in order prevent the need to develop a proprietary interface, which will incur unnecessary extra time and costs.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chikazawa et al. (2002/0044675) and Slevin (2002/0095608).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Zee whose telephone number is (571) 270-1686. The examiner can normally be reached on Monday through Thursday 6:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James W. Myhre can be reached on (571) 270-1065. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EZ
March 31, 2007


James W. Myhre
Supervisory Patent Examiner
